

**CLAIMS****What is claimed is:**

1. A method of compiling a simulation model of a digital design, said method comprising:
  - receiving an indication of a desired set of instrumentation entities to be included within a simulation model of a digital design described by a plurality of hierarchically arranged design entities, wherein said instrumentation entities monitor logical operation of one or more of said plurality of design entities during simulation for occurrence of events of interest;
  - in response to said indication, determining by reference to a bill-of-materials of a previously compiled file whether or not the previously compiled file was compiled with instrumentation entities compatible with the desired set of instrumentation entities; and
  - in response to determining that the previously compiled file was compiled with compatible instrumentation entities, compiling the simulation model of the digital design utilizing said previously compiled file in accordance with the indication.
2. The method of Claim 1, wherein each of said plurality of design entities is defined by one or more hardware definition language (HDL) files, and wherein each of the instrumentation entities is associated with one or more of the plurality of design entities by a statement within the one or more HDL files defining the one or more associated design entities.
3. The method of Claim 1, wherein said determining includes examining a constraint information data structure within the bill-of-materials.
4. The method of Claim 1, wherein the previously compiled file is a first previously compiled file, and further comprising performing said determining in response to a determination that a second previously compiled file corresponding to a parent design entity of a current entity corresponding to the first previously compiled file was not compiled with instrumentation entities compatible with the desired set.

5. The method of Claim 1, and further comprising:  
in response to a determining that said previously compiled file was not compiled with a compatible set of instrumentation entities, compiling a portion of the simulation model corresponding to previously compiled file from one or more source code files.
6. The method of Claim 1, and further comprising performing said determining and said compiling for said plurality of hierarchically arranged design entities in a recursive process.
7. A data processing system, comprising:  
a processing resources;  
data storage coupled to the processing resources, said data storage including a compiler for compiling a simulation model of a digital design, wherein said compiler includes:  
means for receiving an indication of a desired set of instrumentation entities to be included within a simulation model of a digital design described by a plurality of hierarchically arranged design entities, wherein said instrumentation entities monitor logical operation of one or more of said plurality of design entities during simulation for occurrence of events of interest;  
means, responsive to said indication, for determining by reference to a bill-of-materials of a previously compiled file whether or not the previously compiled file was compiled with instrumentation entities compatible with the desired set of instrumentation entities; and  
means, responsive to determining that the previously compiled file was compiled with compatible instrumentation entities, for compiling the simulation model of the digital design utilizing said previously compiled file in accordance with the indication.
8. The data processing system of Claim 7, wherein each of said plurality of design entities is defined by one or more hardware definition language (HDL) files, and wherein each of the

instrumentation entities is associated with one or more of the plurality of design entities by a statement within the one or more HDL files defining the one or more associated design entities.

9. The data processing system of Claim 7, wherein said means for determining includes means for examining a constraint information data structure within the bill-of-materials.

10. The data processing system of Claim 7, wherein the previously compiled file is a first previously compiled file, and wherein said means for determining comprises means for determining whether or not the first previously compiled file was compiled with instrumentation entities compatible with the desired set of instrumentation entities in response to a determination that a second previously compiled file corresponding to a parent design entity of a current entity corresponding to the first previously compiled file was not compiled with instrumentation entities compatible with the desired set.

11. The data processing system of Claim 7, and further comprising:

means, responsive to determining that said previously compiled file was not compiled with a compatible set of instrumentation entities, for compiling a portion of the simulation model corresponding to previously compiled file from one or more source code files.

12. The data processing system of Claim 7, wherein said means for determining comprises means for determining utilizing a recursive process that traverses a logical tree formed by said plurality of hierarchically arranged design entities.

13. A program product, comprising:

a computer usable medium;

a compiler within the computer usable medium for compiling a simulation model of a

digital design, wherein said compiler includes:

means for receiving an indication of a desired set of instrumentation entities to be included within a simulation model of a digital design described by a plurality of hierarchically arranged design entities, wherein said instrumentation entities monitor logical operation of one or more of said plurality of design entities during simulation for occurrence of events of interest;

means, responsive to said indication, for determining by reference to a bill-of-materials of a previously compiled file whether or not the previously compiled file was compiled with instrumentation entities compatible with the desired set of instrumentation entities; and

means, responsive to determining that the previously compiled file was compiled with compatible instrumentation entities, for compiling the simulation model of the digital design utilizing said previously compiled file in accordance with the indication.

14. The program product of Claim 13, wherein each of said plurality of design entities is defined by one or more hardware definition language (HDL) files, and wherein each of the instrumentation entities is associated with one or more of the plurality of design entities by a statement within the one or more HDL files defining the one or more associated design entities.

15. The program product of Claim 13, wherein said means for determining includes means for examining a constraint information data structure within the bill-of-materials.

16. The program product of Claim 13, wherein the previously compiled file is a first previously compiled file, and wherein said means for determining comprises means for determining whether or not the first previously compiled file was compiled with instrumentation entities compatible with the desired set of instrumentation entities in response to a determination that a second previously compiled file corresponding to a parent design entity of a current entity corresponding to the first previously compiled file was not compiled with instrumentation entities compatible with the desired set.

17. The program product of Claim 13, and further comprising:  
means, responsive to determining that said previously compiled file was not compiled with a compatible set of instrumentation entities, for compiling a portion of the simulation model corresponding to previously compiled file from one or more source code files.
  
18. The program product of Claim 13, wherein said means for determining comprises means for determining utilizing a recursive process that traverses a logical tree formed by said plurality of hierarchically arranged design entities.